

US-PAT-NO: 5930009

DOCUMENT-IDENTIFIER: US 5930009 A

TITLE: System and method for
adjusting color

DATE-ISSUED: July 27, 1999

INVENTOR-INFORMATION:

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APPL-NO: 08/ 607267

DATE FILED: February 20, 1996

PARENT-CASE:

This application is a continuation of
application Ser. No. 08/245,449,
filed May 18, 1994 now abandoned.

COUNTRY	APPL-NO	APPL-DATE
JP	5-119955	May 21, 1993

US-CL-CURRENT: 358/518, 358/504 , 358/520 ,
358/527

ABSTRACT:

A color image system for adjusting colors of inputted images includes a color adjusting unit and color display unit. The color display unit simultaneously displays the original image, the adjusted image, and color information for both the original image and adjusted image. A color adjustment matrix is created by the color adjusting unit based upon color directions inputted to the color display unit with respect to the color information of the original color image. The color adjustment matrix is used to directly adjust the original image without converting the image to a second color space.

19 Claims, 30 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 24

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Detailed Description Text - DETX (20):

Namely, if once the set up matrix has been produced, even when parameters, such as luminance, chroma, hue, based on different color spaces are input from the image display unit 5, it is possible to produce the adjusted pixel directly by performing a calculation using the set up matrix, for the values of the original pixel in RGB space. It is not needed to have the conventional process of converting data of the original pixel in the RGB space into data in color

spaces of luminance, chroma, hue and adjusting the luminance, chroma, hue of the converted data, then putting the adjusted data of the luminance, chroma, hue back into the RGB space. Thus, on account of producing the set up matrix, this embodiment has an advantage that it is possible to produce a new adjusted pixel with using its own color space by only performing the matrix calculation, even parameters based on different color spaces are specified for adjusting the image.

Detailed Description Text - DETX (107):

Step 2: The above matrix is changed by using the hue parameter.

Detailed Description Text - DETX (108):

In the case of the value of the hue parameter Cr, Cg, Cb or Cy, Cm, Cc being positive, the matrix is:

Detailed Description Text - DETX (110):

In the case of the value the hue parameter Cr, Cg, Cb or Cy, Cm, Cc being negative, the matrix

Detailed Description Text - DETX (113):

When both positive and negative values exist in the hue parameter Cr, Cg, Cb or Cy, Cm, Cc, the matrix is changed depending upon the above two examples.

For instance, the case of the hue parameter of red being positive, the hue parameter of green being negative, and that of blue

being positive at the calculation for the primary color becomes as follows. Formula 8 is applied for the hue parameter of red, Formula 10 is for the hue parameter of green, and Formula 8 for the hue parameter of blue. ##EQU27##

Detailed Description Text - DETX (145):

As described above, when the parameters of the luminance, chroma and hue are changed simultaneously, it is possible to produce one set up matrix. The procedure of the foregoing steps 1 to 5 for producing the set up matrix includes a method of calculating the complicated matrix calculation efficiently. Accordingly, it is not always necessary to perform the all steps 1 to 5. Other orders of the steps and other methods of producing the set up matrix are acceptable.